



NOTES ON THE BACTERIOLOGICAL EXAMINATION  
OF WATER FROM THE SYDNEY SUPPLY. No. IV.

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Having been interrupted for about six weeks I was not able to take up again the bacteriological examination of Sydney water until the 29th of last April. From this date up to the 26th inst., however, I examined sixteen samples of this water, derived again in all the cases from the tap in the Laboratory of the Linnean Hall. The following table will best convey an idea of the results obtained so far as the quantity of bacterial colonies, referred to 1 ccm. of the water under consideration, is concerned.

Date.	Temp. of Water.	Number of colonies in 1 ccm.	Number of liquefying colonies in 1 ccm.
(1) Apr. 29, '87	66° F. = 18° <sub>8</sub> C.	140	35 = 25 p.c.
(2) May 2	66 <sub>3</sub> ° F. = 19 <sub>4</sub> ° C.	461	48 = 10 <sub>5</sub> ° p.c.
(3) „ 6	64 F. = 17 <sub>7</sub> ° C.	465	66 = 14 <sub>5</sub> ° p.c.
(4) „ 10	62 F. = 16 <sub>3</sub> ° C.	125	22 = 17 <sub>3</sub> ° p.c.
(5) „ 16	59 F. = 15° C.	41	5 = 12 <sub>5</sub> ° p.c.
(6) „ 19	58 <sub>1</sub> ° F. = 14 <sub>3</sub> ° C.	17	7 = 41 <sub>8</sub> ° p.c.
(7) „ 22	58 F. = 14 <sub>9</sub> ° C.	108	4 = 3 <sub>3</sub> ° p.c.
(8) „ 26	61 F. = 16 <sub>9</sub> ° C.	73	16 = 21 <sub>12</sub> ° p.c.
(9) „ 30	61 F. = 16 <sub>9</sub> ° C.	148	8 = 5 <sub>12</sub> ° p.c.
(10) June 3	61 <sub>10</sub> ° F. = 16 <sub>2</sub> ° C.	92	12 = 13 p.c.
(11) „ 7	56 <sub>10</sub> ° F. = 13 <sub>2</sub> ° C.	212	27 = 12 <sub>3</sub> ° p.c.
(12) „ 11	55 <sub>5</sub> ° F. = 13° C.	491	54 = 11 p.c.
(13) „ 14	54 <sub>5</sub> ° F. = 12 <sub>3</sub> ° C.	164	19 = 11 <sub>5</sub> ° p.c.
(14) „ 18	55 <sub>5</sub> ° F. = 13° C.	99	10 = 10 <sub>10</sub> ° p.c.
(15) „ 22	57 <sub>1</sub> ° F. = 14° C.	152	36 = 23 <sub>3</sub> ° p.c.
(16) „ 26	55 <sub>5</sub> ° F. = 13° C.	25	6 = 24 p.c.

The mean number of colonies out of these figures, for 1 ccm. of water, is 176, among which there are 23 or 24 colonies = to about  $13\frac{7}{22}$  p.c., which caused liquefaction of the nutrient gelatine.

Save a few interruptions these bacteriological examinations of Sydney Tap-Water extend now over nearly one year (see these Proceedings, September 1886, December 1886, March 1887), and taking into consideration the average numbers of bacterial colonies obtained each of the four times, we arrive at a mean of 246 for one cubiccentim., out of which 67, or about  $27\frac{1}{4}$  p.c., were such as liquefied the gelatine. At the beginning it was my intention to describe all kinds of bacteria met with; but by-and-by the number of these became so large that from want of time and opportunity I had to give the idea up. In order to have a practical bearing, the investigation of every kind of bacterium found in potable waters has to deal with its principal biological properties, and, as already mentioned previously, it has to be ascertained which of the forms cultivated are so-called "water-bacteria," and which ones must be looked upon as merely accidental. But without having been able to do this I trust that the results of my examinations, in the form offered, will not be quite devoid of interest. The bacillus of typhoid fever I have not yet come across in Sydney water, although now and then bacteria came under notice which were not unlike it in several points. By that I do not mean to say that the true microbe of typhoid fever might not occasionally be present in this water; it must be borne in mind that, after all, the chances to obtain it from this source will be but slight in face of the fact that comparatively only minute portions of it, up to 1 ccm., can be taken for each individual test. However, when there is a strong suspicion of its being grossly contaminated with the germs of typhoid fever, the chances to actually demonstrate these out of the water, naturally increase, and on such occasions the carrying out of bacteriological examinations will prove to be of special value.